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UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE BOARD OF PATENT APPEALS
AND INTERFERENCES

Ex parte CHANG-SEOB KIM, JU-HYUNG KIM,
MIN-HO SONG, and JUNG-WON KANG

Appeal 2009-003357¹
Application 10/748,197
Technology Center 1700

Decided:² July 09, 2009

Before JEFFREY T. SMITH, MARK NAGUMO, and
MICHAEL P. COLAIANNI, *Administrative Patent Judges*.

COLAIANNI, *Administrative Patent Judge*.

DECISION ON APPEAL

¹ A hearing was held in this appeal on June 25, 2009.

² The two-month time period for filing an appeal or commencing a civil action, as recited in 37 C.F.R. § 1.304, begins to run from the Decided Date shown on this page of the decision. The time period does not run from the Mail Date (paper delivery) or Notification Date (electronic delivery).

Appellants appeal under 35 U.S.C. § 134 from the final rejection of claims 1-8, 10, 12-15, and 20-28. We have jurisdiction over the appeal pursuant to 35 U.S.C. § 6(b).

We AFFIRM.

Appellants disclose a jelly-roll type battery unit having a tab incorporated into an electrode current collector of the battery and a winding method (Spec. ¶ [0002]).

Claim 1 is illustrative:

1. A jelly-roll type battery unit comprising:

a first electrode plate having a first electrode current collector with a first electrode tab, and a first electrode active material layer coated on at least one surface of the first electrode current collector;

a second electrode plate having a second electrode current collector with a second electrode tab, and a second electrode active material layer coated on at least one surface of the second electrode current collector; and

a separator that is interposed between the first electrode plate and the second electrode plate, wherein the first or the second electrode tab is incorporated into the electrode current collector in an area of either the first or the second electrode plate where the corresponding electrode active material layer is not coated,

wherein the first or second electrode tab is formed by folding a cut portion of the first or second electrode current collector toward an upper edge thereof, and the cut portion is at least partially defined by a cut that begins at a lower edge of the first or second electrode current collector and extends along more than half of a width thereof.

The Examiner relies on the following prior art references as evidence of unpatentability:

Narukawa
Sugita

5,508,122
US 6,432,578 B1

Apr. 16, 1996
Aug. 13, 2002

The appealed rejections are as follows:

1. Claims 1-4, 7, 8, 10, 13-15, 20, and 23-26 are rejected under 35 U.S.C. § 103 as being unpatentable over Sugita.
2. Claims 5, 6, 12, 21, 22, 27, and 28 are rejected under 35 U.S.C. § 103 as being unpatentable over Sugita in view of Narukawa.

With regard to rejection (1), Appellants argue the claims as a group (App. Br. 7-11). Appellants provide separate arguments regarding method claim 8, but the arguments provided are identical to those made regarding product claim 1. Accordingly, we select claim 1 as representative in rendering our decision.

With regard to rejection (2), Appellants argue the claims as a group of which we select claim 5 as representative in rendering our decision.

Rejection (1): § 103 over Sugita

STATEMENT OF THE CASE

Appellants argue that there is no motivation for modifying Sugita's battery to have an electrode tab formed by folding a cut portion of an electrode current collector toward an upper edge thereof, the cut portion being at least partially defined by a cut that begins at a lower edge of the electrode current collector and extends along more than half of the width of the electrode current collector as required by claim 1 (App. Br. 7). Appellants contend that the Examiner's rationale of overcoming manufacturing difficulties is conclusory and not disclosed by Sugita such that the Examiner has not established a reason for modifying Sugita (App. Br. 7-8). Appellants argue that the Examiner impermissibly relied on

hindsight to arrive at the modifications necessary to render the claimed invention obvious (App. Br. 8).

ISSUE

Have Appellants shown that the Examiner reversibly erred in determining that there is a reason to modify Sugita's battery electrode tab such that the tab is cut from the current collector and folded by forming a cut that begins from the lower edge of the current collector and extends along more than half of a width of the current collector as required by claim 1? We decide this issue in the negative.

PRINCIPLES OF LAW

"[T]he analysis need not seek out precise teachings directed to the specific subject matter of the challenged claim, for a court can take account of the inferences and creative steps that person of ordinary skill in the art would employ." *KSR Int'l Co. v. Teleflex Inc.*, 550 U.S. 398, 418 (2007).

Appellants' attorney's arguments do not take the place of evidence in the record. *In re Pearson*, 494 F.2d 1399, 1405 (CCPA 1974).

FACTUAL FINDINGS (FF)

1. With the exception of the electrode tab length being formed by cutting from more than half way of a width of the current collector to the far edge of the current collector, Appellants do not contest that Sugita discloses all the features of claim 1. (App. Br. 7-11).
2. Sugita discloses that a positive or negative electrode tab may be formed by incising a portion of the current collector and folding the

incised portion to form an electrode tab (col. 12, ll. 39-54; col. 14, ll. 13-15).

3. Sugita discloses that the folded electrode tab length may be made longer by lengthening the incision (col. 13, ll. 13-20).

ANALYSIS

Appellants argue that the prior art does not provide a reason to modify Sugita's electrode tab such that the tab is formed by cutting from the bottom edge of the current collector to a position at least half way through the width of the current collector. (App. Br. 7) We disagree.

The Examiner's rationale for the modification, to make manufacturing of the tab easier, is based on the knowledge in the art at the time the invention was made (Ans. 5 and 9). The Examiner explains that forming the tab by cutting from the bottom edge to a point half-way along the width of the current collector electrode sheet would involve fewer cuts and, thus, simplify the process (Ans. 7-8).

Though Appellants contend that there is no disclosure in Sugita of difficulties with the tab manufacturing process, motivation does not have to come solely from the patent. Rather, we may take account of the inferences and creative steps that one of ordinary skill in the art would employ. *KSR*, 550 U.S. at 418. In this case Sugita teaches that the incision may be lengthened depending on the size desired (FF 3). A person having ordinary skill in the art would have recognized that the maximization of this teaching would have been to extend the incision to the bottom edge of a current collector electrode. Because Sugita teaches starting the incision more than half-way across the electrode, the tab when folded would project above the electrode, as required to make a projecting portion for making an external

electrical connection. The Examiner did not rely on impermissible hindsight, but, rather, the knowledge of one of ordinary skill in the art imbued with Sugita's disclosure.

Appellants argue that the Examiner has not established that one of ordinary skill in the art would have known to shift the electrode location to the edge of the current collector (i.e., as shown on page 8 of the Answer in the "one cut" embodiment) absent hindsight (Reply Br. 3-4). However, Sugita's disclosure to lengthen the incision depending on the desired size indicates that one of ordinary skill in the art would have known to lengthen the tab such that it extends from the bottom edge of a current electrode to more than half-way the width of the current collector electrode for a battery requiring that tab size.

In that regard, Appellants mere arguments that additional energy and time would have been required to make the longer cuts (Reply Br. 4) such that manufacturing efficiency may not be increased are without persuasive merit. Appellants have not provided any evidence that those skilled in the art would have required more time and energy to set up and make the simpler cuts. Nor have Appellants shown that time and energy were at such a premium that the ordinary worker would have been dissuaded from making the apparently simpler cuts. Mere attorney argument does not take the place of evidence in the record. *In re Pearson*, 494 F.2d 1399, 1405 (CCPA 1974).

We conclude that Appellants have not proved reversible error, and we affirm the Examiner's rejection of claims 1-4, 7, 8, 10, 13-15, 20, and 23-26 under § 103 over Sugita.

Rejections (2): § 103 Rejections over Sugita in view of Narukawa

STATEMENT OF THE CASE

Appellants argue that Narukawa does not overcome the deficiencies argued with regard to independent claim 1 (App. Br. 12). Appellants further argue that Sugita teaches away from using an insulating tape on the electrode tab (App. Br. 12). Appellants further argue that Sugita discloses a preference not to use adhesive tape in the terminal portion because this may cause a decrease in working efficiency and unexpected chemical reactions (App. Br. 12).

ISSUE

Have Appellants shown that the Examiner erred in determining that there is a reason to combine Narukawa's insulating tape with Sugita's electrode tab? We decide this issue in the negative.

PRINCIPLES OF LAW

A reference that teaches away cannot serve to create a prima facie case of obviousness. *In re Gurley*, 27 F.3d 551, 553 (Fed. Cir. 1994). A reference may be said to teach away "when a person of ordinary skill, upon reading the reference, would be discouraged from following the path set out in the reference, or would be led in a direction divergent from the path that was taken by the applicant." *Id.* "The degree of teaching away will of course depend on the particular facts; in general, a reference will teach away if it suggests that the line of development flowing from the reference's disclosure is unlikely to be productive of the result sought by the applicant." *Id.*

FINDINGS OF FACT (FF)

4. Sugita discloses that the adhesive tape may be used to hold the electrode tab (col. 11, ll. 3-12).
5. Sugita discloses using an insulating plate to prevent contact and short-circuiting of the positive electrode tab with the negative electrode plate (col. 13, ll. 1-8).
6. Sugita further discloses that in lieu of the insulating plate, the positive electrode tab may be coated with an insulating material to prevent contact between the contact of the negative electrode plate in a spirally wound electrode body (col. 14, ll. 59-63).
7. Appellants do not contest the Examiner's finding that Narukawa discloses using insulating tape on electrode tabs (App. Br. 12-13; Ans. 6-7).

ANALYSIS

Appellants' teaching away argument is premised on Sugita's disclosure that using double-sided tape for the insulating tape on the bottom of the spirally-wound electrode body or for the adhesive tape in the rolling-terminal portion of the spirally wound electrode body is not preferable because of a decrease in working efficiency and unexpected chemical reactions (App. Br. 12 citing Sugita, col. 4, ll. 64-67, and col. 5, ll. 1-4). However, as plainly stated by Sugita, that disclosure is directed to using "double-sided tape;" not insulating or adhesive tape.

In fact, Sugita discloses that adhesive tape may be used to fix the electrode tab in place (FF 4). Accordingly, Appellants' teaching away and destruction of apparatus functionality arguments are without persuasive merit.

Additionally, Sugita further discloses that the electrode tab may be coated with an insulating material to prevent contact (i.e., short-circuiting) between the electrode tab and the spirally wound battery (FF 5 and 6). In other words, Sugita discloses to one of ordinary skill in the art that an insulation coated electrode tab may be fixed in place using an adhesive tape.

For the above reasons, we determine that Appellants have not shown error in the Examiner's determination that the references provide a reason to combine Narukawa's insulating tape with Sugita's electrode tab. We affirm the Examiner's § 103 rejection of claims 5, 6, 12, 21, 22, 27, and 28 over Sugita in view of Narukawa.

DECISION

The Examiner's decision is affirmed.

No time period for taking any subsequent action in connection with this appeal may be extended under 37 C.F.R. § 1.136(a)(1)(v)(2008).

ORDER

AFFIRMED

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